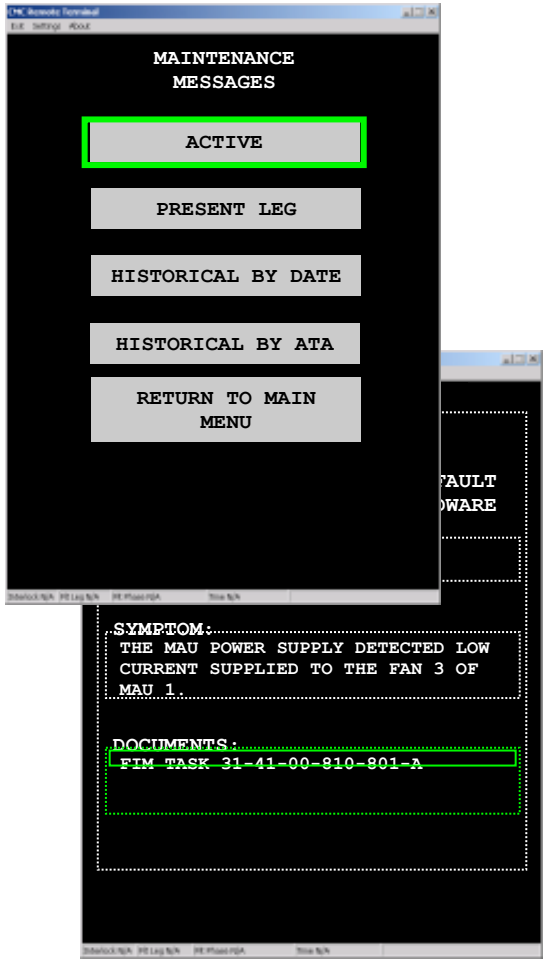
E170

EMBRAER

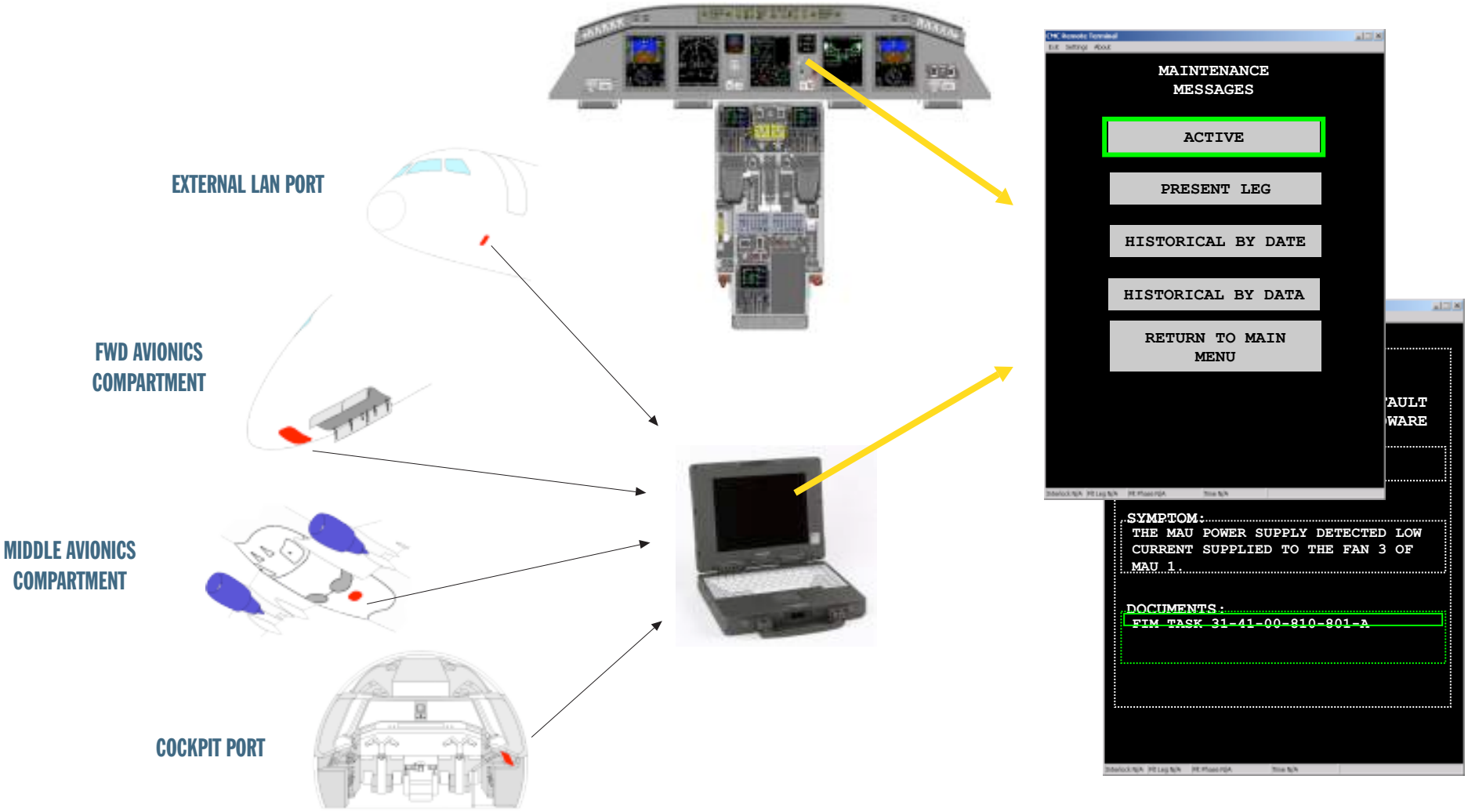
EASY SYSTEM DIAGNOSIS.



- simple and intuitive troubleshooting
- speeds up maintenance procedures, quickly identifying root causes
- can be used for interactive tests
- in-flight diagnostic download capability
- on-line link to maintenance manuals permits hypertext link between maintenance messages and related text within electronics manual
- direct communication with printer

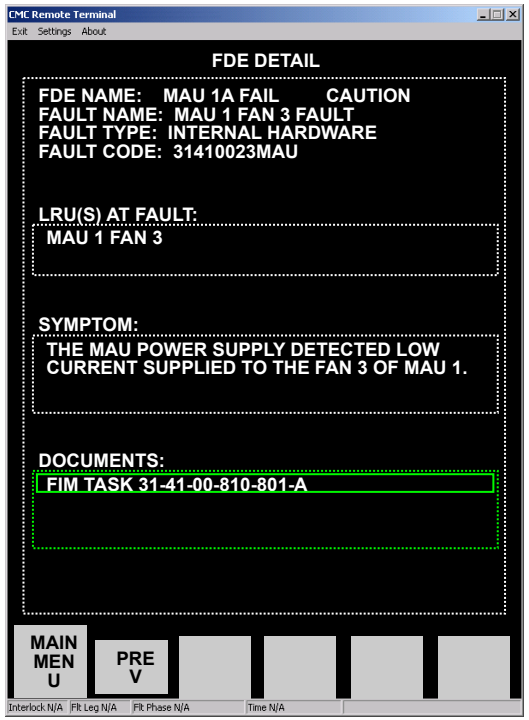
E170 – CENTRAL MAINTENANCE COMPUTER

EASY ACCESS VIA COCKPIT OR THROUGH 4 LAN PORTS.



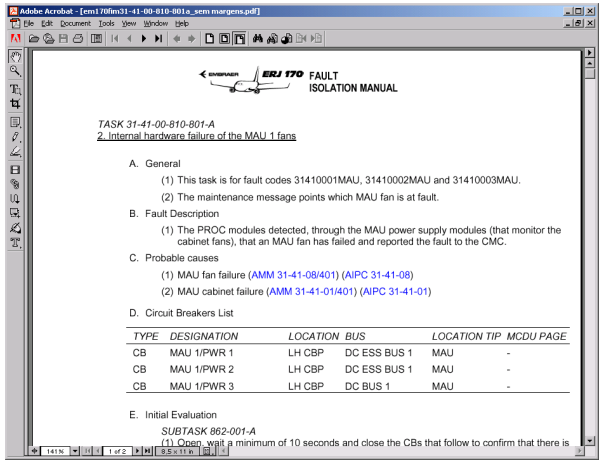
IN June 2009

CMC MESSAGES LINKED TO TECHNICAL PUBLICATIONS.



Clicking on the FIM Task reference opens the Digital Technical Data link for the corresponding FIM task which clears the fault.

Clicking on the AMM hyperlink from the FIM Task reference identifies the removal & installation actions for the defective component and enables easy fault clearance.



ERJ 170 FAULT ISOLATION MANUAL

TASK 31-41-00-810-801-A
2. Internal hardware failure of the MAU 1 fans

A. General
(1) This task is for fault codes 31410001MAU, 31410002MAU and 31410003MAU.
(2) The maintenance message points which MAU fan is at fault.

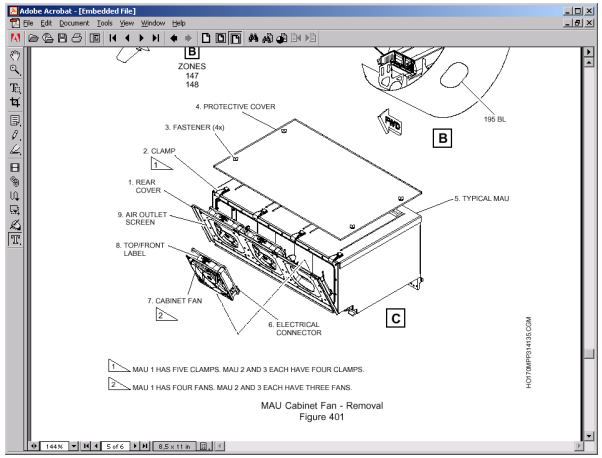
B. Fault Description
(1) The PROC modules detected, through the MAU power supply modules (that monitor the cabinet fans), that an MAU fan has failed and reported the fault to the CMC.

C. Probable causes
(1) MAU fan failure (AMM 31-41-08/401) (AIPC 31-41-08)
(2) MAU cabinet failure (AMM 31-41-01/401) (AIPC 31-41-01)

D. Circuit Breakers List

TYPE	DESIGNATION	LOCATION	BUS	LOCATION TIP	MCDU PAGE
CB	MAU 1/PWR 1	LH CBP	DC ESS BUS 1	MAU	-
CB	MAU 1/PWR 2	LH CBP	DC ESS BUS 1	MAU	-
CB	MAU 1/PWR 3	LH CBP	DC BUS 1	MAU	-

E. Initial Evaluation
SUBTASK 862-001-A
(1) Open, wait a minimum of 10 seconds and close the CBs that follow to confirm that there is



CMC – REMOTE TERMINAL (LAPTOP)

FAULT ISOLATION MANUAL (FIM)

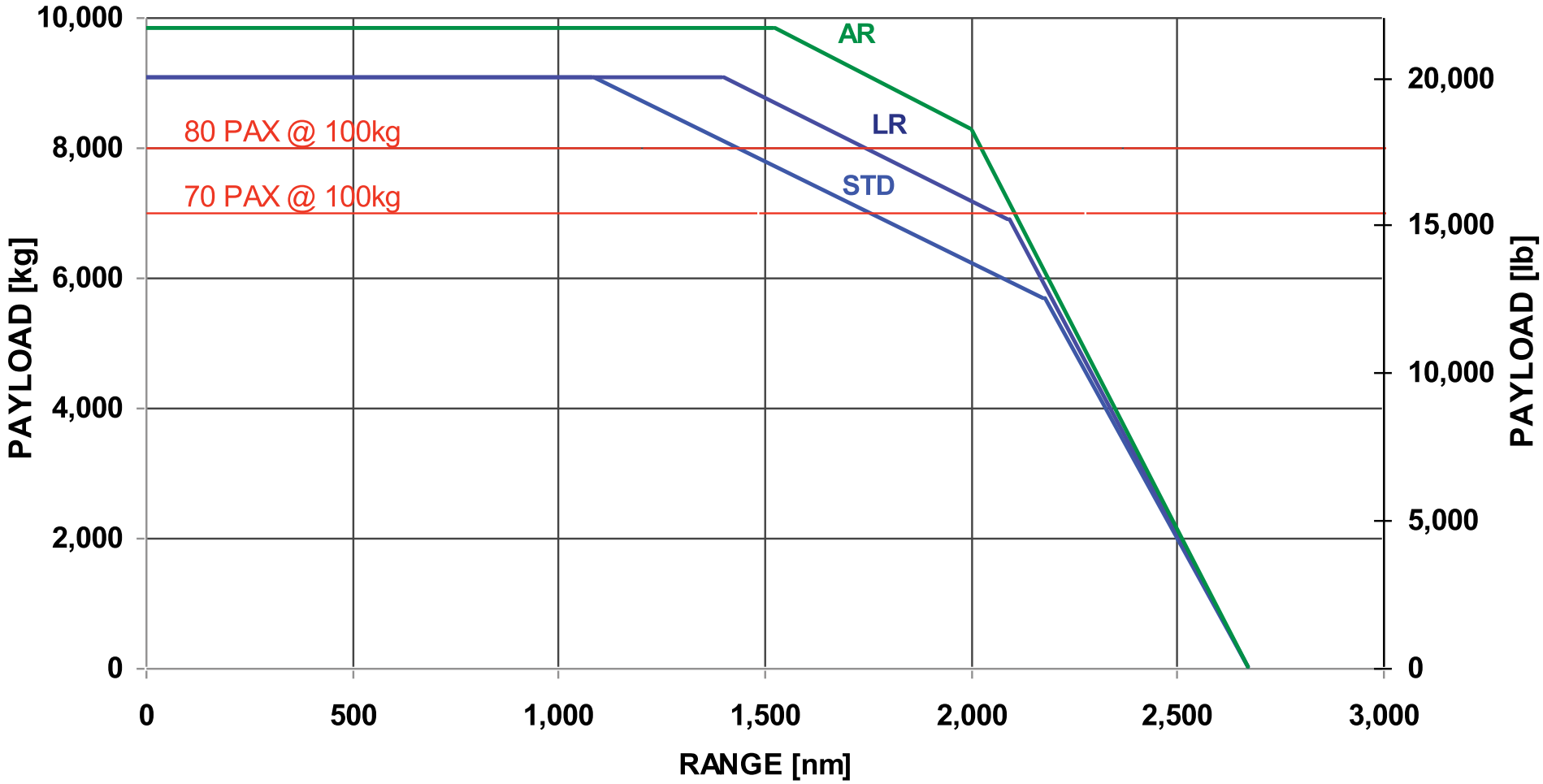
AIRCRAFT MAINTENANCE MANUAL (AMM)

PERFORMANCE CHARACTERISTICS

	EMBRAER 170			EMBRAER 175			EMBRAER 190			EMBRAER 195		
	STD	LR	AR	STD	LR	AR	STD	LR	AR	STD	LR	AR
RANGE nm FULL PAX*, LRC (km)	1,800 3,336	2,000 3,706	2,100 3,892	1,700 3,151	1,900 3,521	2,000 3,706	1,800 3,336	2,300 4,262	2,400 4,448	1,500 2,780	1,900 3,521	2,200 4,077
TAKEOFF FIELD LENGTH m MTOW, ISA, SL – E5 ENGINES FOR STD & LR; E5A1 FOR AR VERSION (ft)	1,483 4,865	1,582 5,190	1,644 5,394	1,612 5,289	1,724 5,656	2,244 7,362	1,598 5,243	1,830 6,004	2,100 6,890	1,742 5,715	1,992 6,535	2,179 7,149
LANDING FIELD LENGTH m MLW, ISA, SL (ft)	1,228 4,029		1,241 4,072	1,259 4,131		1,261 4,137	1,226 4,022		1,244 4,081	1,260 4,134		1,275 4,183
TAKEOFF FIELD LENGTH m TOW FOR 500 NM, FULL PAX*, ISA, SL E5 ENGINES (ft)	1,147 3,763			1,261 4,137			1,267 4,157			1,460 4,790		
TIME TO CLIMB min.	16			18			16			18		
MAX. OPERATING SPEED Mach	0.82			0.82			0.82			0.82		
SERVICE CEILING (ft)	41,000			41,000			41,000			41,000		

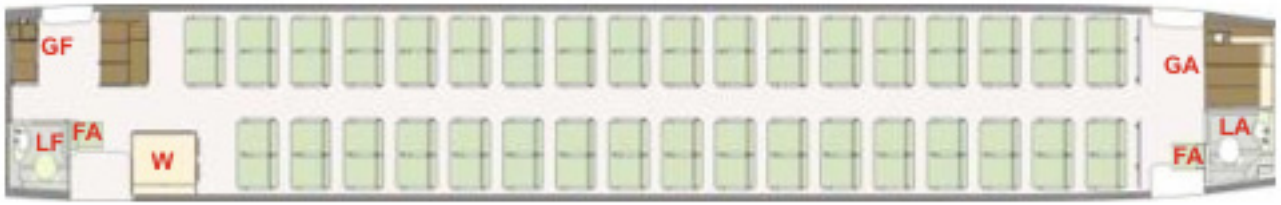
* Single-class seating at 32” pitch; Passengers at 100 kg (220 lb)

E170 – PAYLOAD RANGE



Cruise at M 0.75; typical mission reserves, 100 nm alternate

70 SEATS AT 32" PITCH

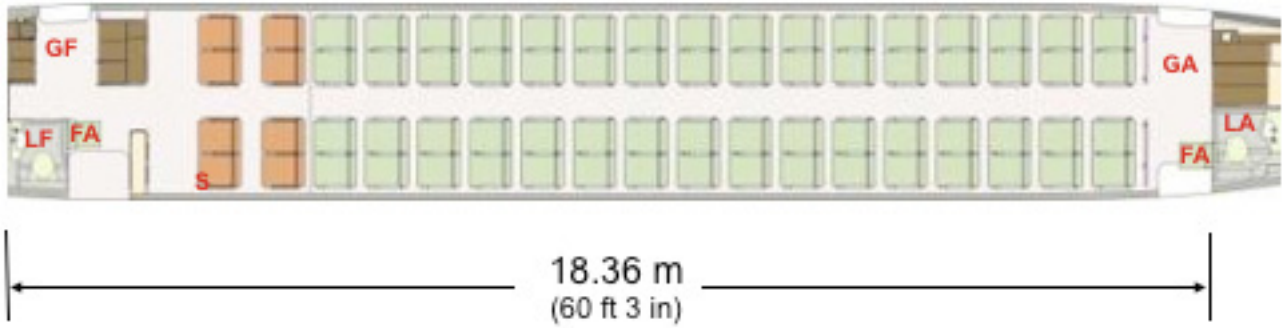


STOWAGE - $m^3(ft^3)$	AIRCRAFT	PER SEAT	GALLERY ARRANGEMENT
OVERHEAD BIN	**3.87** (136.7)	**0.055** (1.95)	GF: 5 HALF TROLLEYS
WARDROBE	**1.19** (42.0)	**0.017** (0.60)	GA: 6 HALF TROLLEYS
UNDERSEAT	**2.80** (98.9)	**0.040** (1.41)	
UNDERFLOOR	**14.39** (508.2)	**0.206** (7.26)	
TOTAL	**22.25** (785.8)	**0.318** (11.23)	

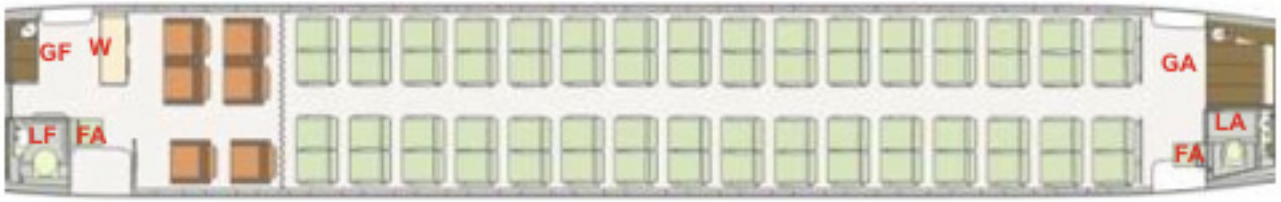
78 SEATS AT 31" PITCH

FA FA Seat
LF Forward Lavatory
GA Aft Galley
GF Forward Galley
W Wardrobe
LA Aft Lavatory
S Stowage

70 SEATS AT 32” PITCH

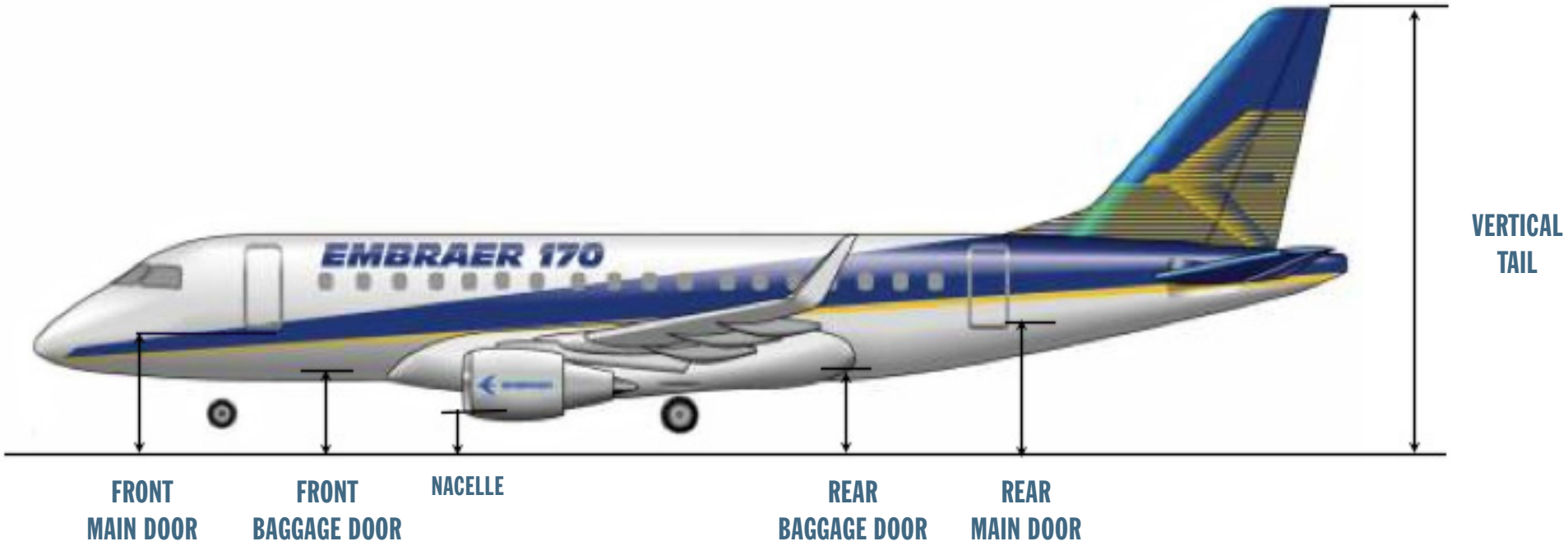


78 SEATS AT 31” PITCH



FA FA Seat
LF Forward Lavatory
GA Aft Galley
GF Forward Galley
W Wardrobe
LA Aft Lavatory
S Stowage

E170 – GROUND CLEARANCES



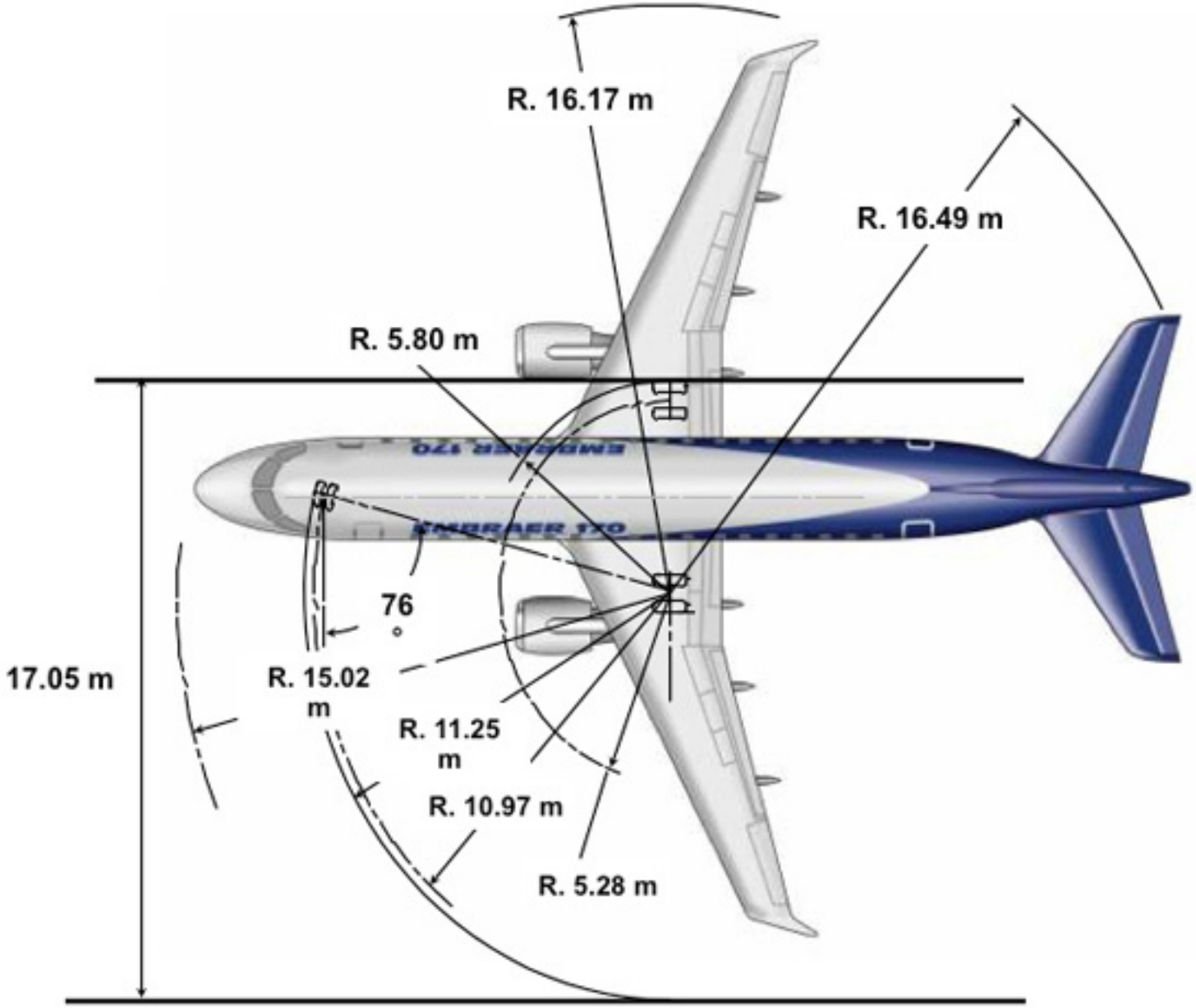
	FRONT MAIN DOOR	NACELLE	REAR MAIN DOOR	VERTICAL TAIL	FRONT BAGGAGE DOOR	REAR BAGGAGE DOOR
MAXIMUM	2.63 m	0.55 m	2.56 m	9.79 m	1.55 m	1.57 m
	8 ft 8 in	1 ft 10 in	8 ft 5 in	32 ft 2 in	5 ft 2 in	5 ft 2 in
TYPICAL*	2.58 m	0.51 m	2.46 m	9.64 m	1.51 m	1.49 m
	8 ft 6 in	1 ft 9 in	8 ft 1 in	31 ft 8 in	5 ft 0 in	4 ft 11 in
MINIMUM	2.54 m	0.46 m	2.37 m	9.52 m	1.46 m	1.41 m
	8 ft 4 in	1 ft 7 in	7 ft 10 in	31 ft 3 in	4 ft 10 in	4 ft 8 in

* 75% load factor, PAX at 100kg (bags included), fuel for 500 nm trip

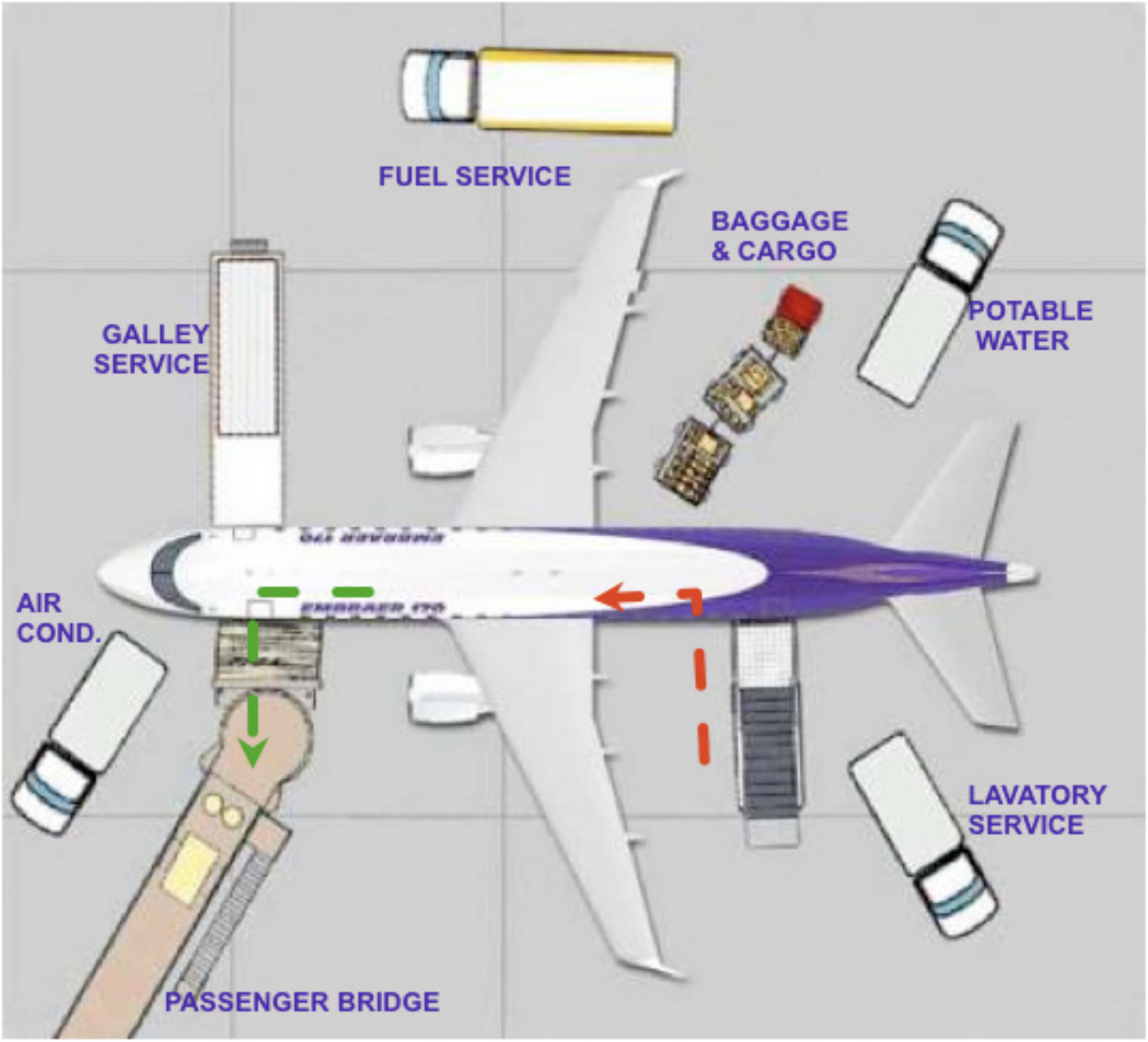
E170 – TURNING RADIUS

MINIMUM RUNWAY WIDTH FOR A 180 DEGREE TURN.

E170 17.05 m (55 ft 11 in)
E175 18.04 m (59 ft 2 in)
E190 21.40 m (70 ft 3 in)
E195 22.64 m (74 ft 3 in)

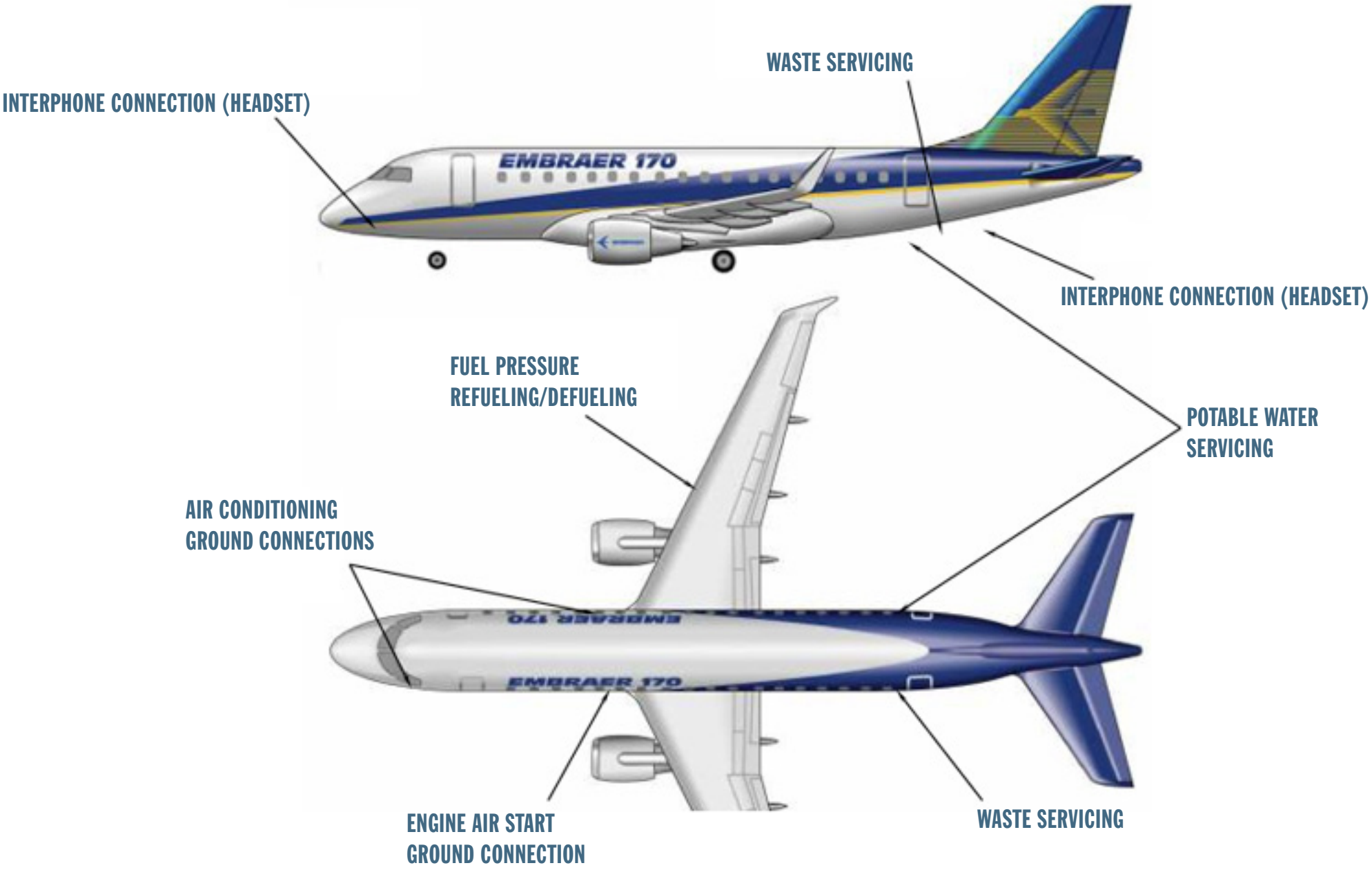


TURNAROUND IN AS FEW AS 15 MINUTES.



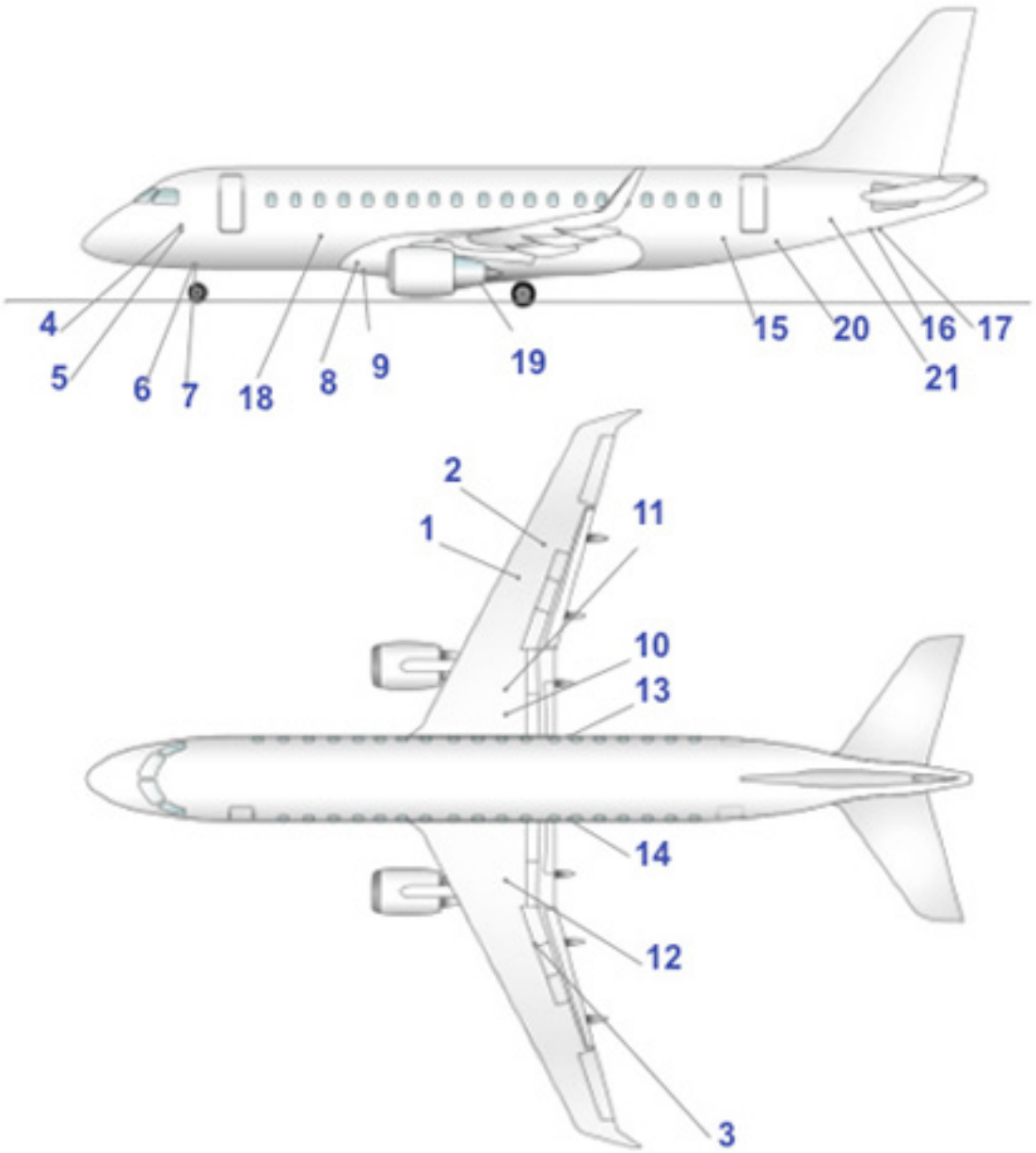
IN June 2009

E170/E175 – GROUND SERVICE POINTS

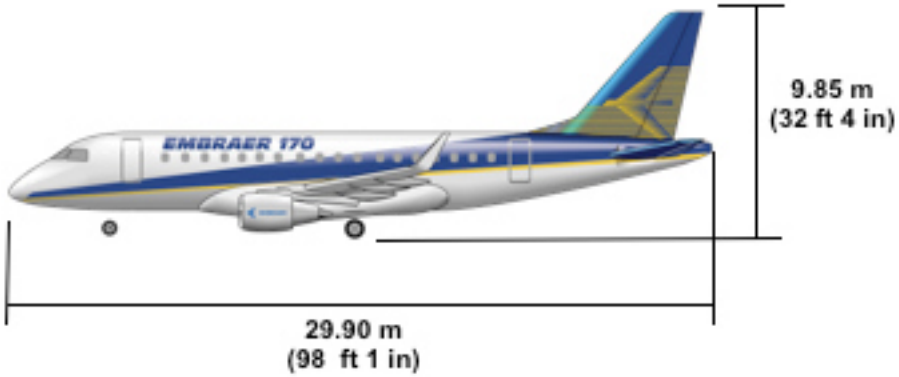


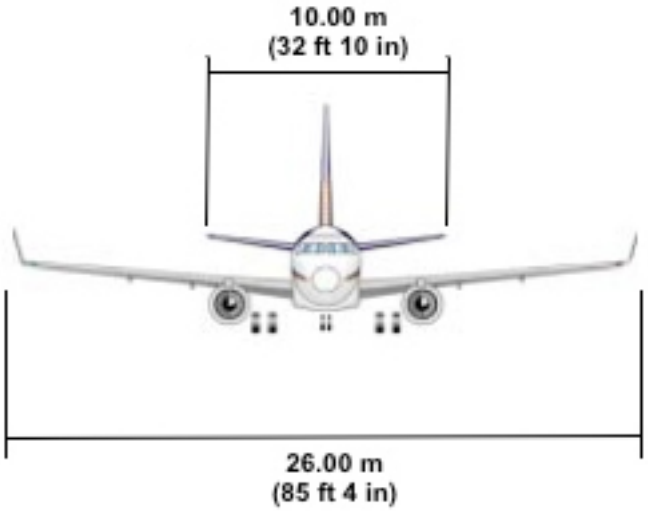
E170/E175 – GROUND SERVICE POINTS

1	PRESSURE REFUELING PANEL
2	GRAVITY REFUELING PORT (RH)
3	GRAVITY REFUELING PORT (LH)
4	EXTERNAL POWER SUPPLY 115VAC / 400 HZ
5	FORWARD RAMP HEADSET
6	STEERING SWITCH DISENGAGE
7	WHEEL JACK POINT – NLG
8	AIR CONDITIONING GROUND CONNECTION
9	ENGINE AIR STARTING (LOW PRESSURE UNIT)
10	GROUNDING POINT (ELECTRICAL)
11	WHEEL JACK POINT – MLG (RH)
12	WHEEL JACK POINT – MLG (LH)
13	HYDRAULIC SYSTEM #1 SERVICE PANEL
14	HYDRAULIC SYSTEM #2 SERVICE PANEL
15	WATER SERVICE PANEL
16	EXTERNAL POWER SUPPLY 28 VDC/ 400A
17	AFT RAMP HEADSET
18	OXYGEN SERVICING PANEL / BOTTLE
19	FUEL TANK DRAIN VALVE (RH)
20	WASTE SERVICING PANEL
21	HYDRAULIC SYSTEM #3 SERVICE PANEL



E170 – FRONT AND SIDE VIEWS





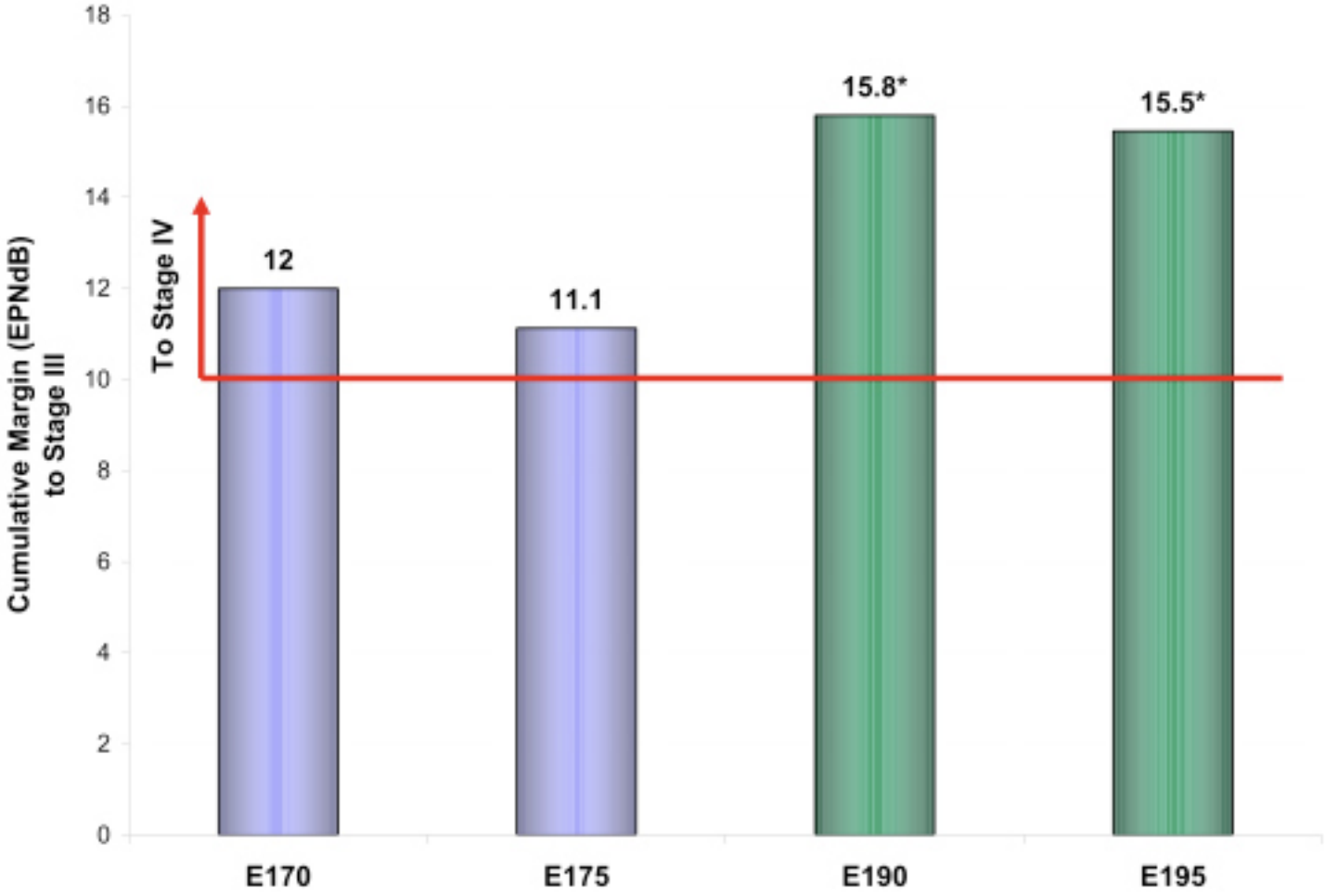
EMBRAER 170/175	GENERAL ELECTRIC CF34-8E
MAX TO THRUST (SL, STATIC, ISA)	14,200 LB
MAXIMUM DIAMETER	136 CM / 53.4 IN
WEIGHT – DRY ENGINE	1,192 KG / 2,627 LB

MARGIN TO ICAO ANNEX 16 VOLUME II EMISSIONS REQUIREMENTS.

GENERAL ELECTRIC CF34-8E

EMISSIONS PARAMETER	VALUE	MARGIN TO CAEP/6 LIMIT
HC (G/KN)	0.5	97.6%
CO (G/KN)	42.5	64.0%
NOX (G/KN)	43.2	26.4%
SMOKE (SN)	11.1	59.3%

E-JETS – EXTERNAL NOISE LEVELS



Notes: - Standard versions, E5 engines, approach flap 6.
* Approved noise levels. DCA and AFM to be approved in 2008.

E-JETS – DESIGN WEIGHTS

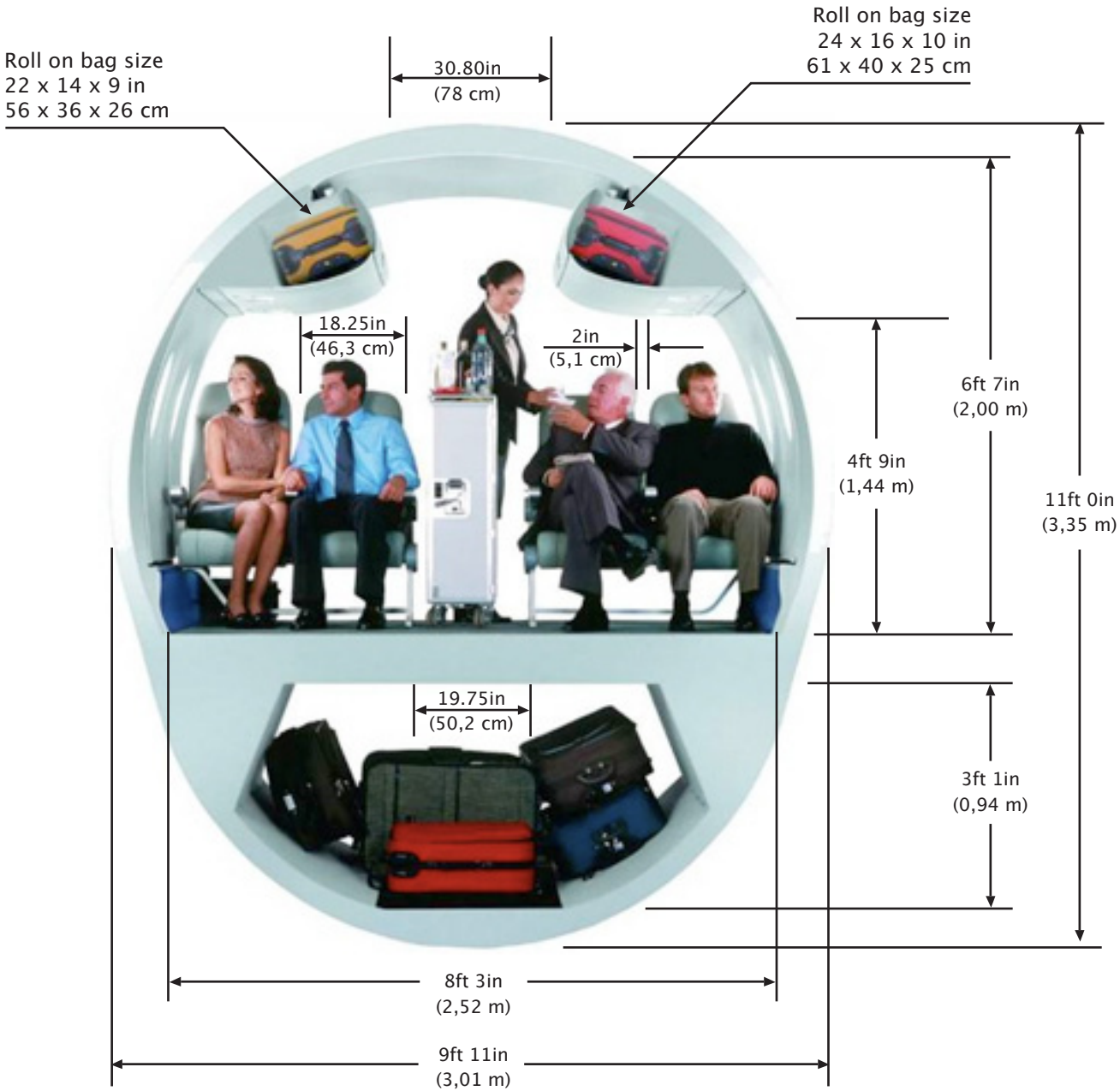
E-JETS COMBINE HIGH PAYLOAD CAPABILITY WITH LOW AIRCRAFT WEIGHT.

		EMBRAER 170			EMBRAER 175			EMBRAER 190			EMBRAER 195		
		STD	LR	AR	STD	LR	AR	STD	LR	AR	STD	LR	AR
MTOW	kg	35,990	37,200	38,600	37,500	38,790	40,370	47,790	50,300	51,800	48,790	50,790	52,290
	(lb)	79,344	82,012	85,098	82,673	85,517	89,000	105,359	110,893	114,199	107,564	111,973	115,280
MLW	kg	32,800		33,300	34,000		34,100	43,000		44,000	45,000		45,800
	(lb)	72,312		73,414	74,957		75,178	94,799		97,003	99,208		100,972
BOW (std)	kg	21,040		21,060	21,620		21,640	27,720		27,820	28,850		28,950
	(lb)	46,385		46,429	47,664		47,708	61,112		61,333	63,603		63,824
MZFW	kg	30,140		30,900	31,700		32,000	40,800		40,900	42,500		42,600
	(lb)	66,447		68,123	69,887		70,548	89,949		90,169	93,696		93,917
MAX. PAYLOAD	kg	9,100		9,480	10,080		10,360	13,080			13,650		
	(lb)	20,062		21,693	22,223		22,840	28,836			30,093		
MAX. USABLE FUEL*	kg	9,335			9,335			12,971			12,971		
	(lb)	20,580			20,580			28,596			28,596		
MAX. USABLE FUEL	l	11,625			11,625			16,153			16,153		
	(gal)	3,071			3,071			4,267			4,267		

* Fuel density 0.803 kg/l (6.70 lb/gal)

IN June 2009

E-JETS – CROSS SECTION



E-JETS – SPARE PARTS COMMONALITY

EMBRAER 170

EMBRAER 175

100%

EMBRAER 190

EMBRAER 195

100%

86%

E-JETS – PILOT TRAINING COMMONALITY

SAME COCKPIT, COMMON SYSTEMS AND FLY-BY-WIRE TECHNOLOGY MEAN A/A/A PILOT TRAINING COMMONALITY WITHIN THE FAMILY.

	E170	E175	E190	E195
E170	----------	A/A/A	A/A/A	A/A/A
E175	A/A/A	----------	A/A/A	A/A/A
E190	A/A/A	A/A/A	----------	A/A/A
E195	A/A/A	A/A/A	A/A/A	----------

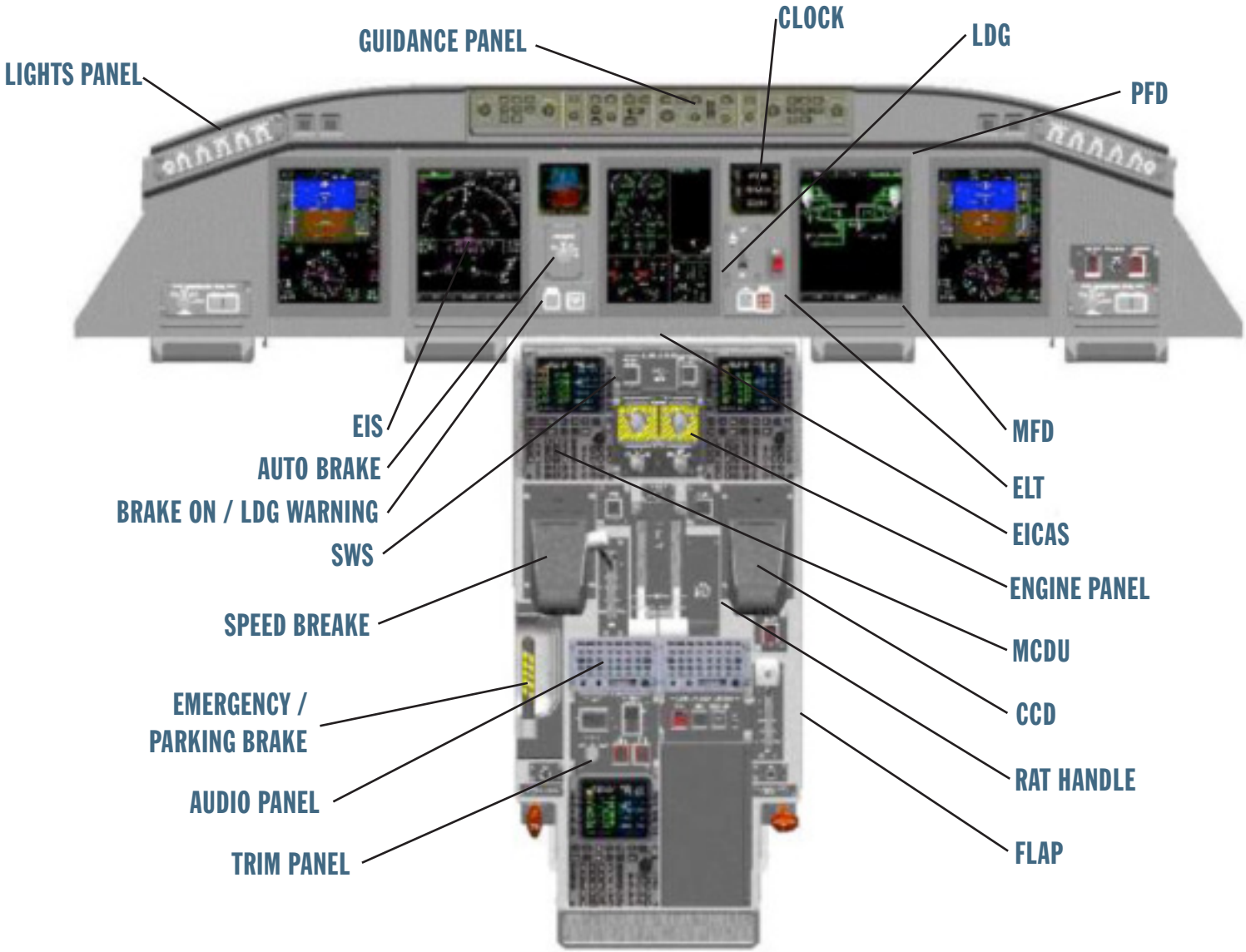
Training qualification differences: FAA AC 120– 53, grades range from A (best) to E (worst) in 3 categories: training differences, check differences and recurrent training.

OTHER PERSONNEL TRAINING

- Minimum training differences requirements for maintenance personnel and flight attendants
- No training differences required for flight dispatcher and operations engineer

E170 – COCKPIT

E170 – COCKPIT



E170 – COCKPIT

COMFORT AND EASY ACCESS TO ALL SYSTEMS AND CONTROLS.

E170 – COCKPIT